

**Remarks**

Applicants respectfully request reconsideration of the present application in view of the above-amendments and following remarks. Claims 1, 4, 7, 8, 22 and 23 have been amended, claims 5, 6, 18, 19 and 21 have been cancelled. No new claims have been added. Therefore, claims 1, 3, 4, 7-9, 14, 17, 20 and 22-28 are pending in the present application.

Claim 21 has been rewritten in independent form by amending claim 1 to include all of the limitations from claims 18 and 21. Claims 4, 7 and 8 have been amended so that the limitations are consistent with amended claim 1. Since claim 21 has been cancelled, claim 22 has been amended to change its dependency from claim 21 to claim 1. Claim 23 has been rewritten in independent form to include all of the limitations from claims 1 and 19.

Applicants submit that no new matter has been introduced into the claims in view of the above-referenced amendments. It is therefore requested that the amendments to the claim be entered.

Claims 1, 3-9, 14 and 16-21, 23, 26 and 28 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2002/0110720 to Yang ("the Yang reference"). Claims 5, 6, 16, 18 and 19 have been cancelled, therefore the rejection of these claims is moot. Applicants respectfully traverse the rejection of the remaining claims.

In order to establish a prima facie case of anticipation, each element included in a claim must be disclosed in a single prior art reference. See *W.L. Gore & Assoc. v. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S.

851 (1984). Therefore, if one of the elements included in the claims is not disclosed in the Yang reference, then the anticipation rejection should be withdrawn.

Amended independent claim 1 is directed to a method for forming a fuel cell assembly. The method comprises the steps of: a) forming a fuel cell sub-assembly module containing at least two bonded together fuel cell units, the at least two fuel cell units each including an anode, a cathode, and a membrane electrode assembly, wherein the at least two fuel cell units are bonded together using at least one elastomeric gasket and at least one gasketing element; b) testing the sub-assembly module; and c) joining together a plurality of sub-assembly modules to form the fuel cell assembly.

The Yang reference does not teach or suggest a method for forming a fuel cell assembly wherein one of at least one elastomeric gasket or at least one gasketing element is cured prior to bonding together at least two fuel cell units, and the other of the at least one elastomeric gasket and the at least one gasketing element is cured during the bonding together of the at least two fuel cell units as recited in amended claim 1. In rejecting this portion of the claim, the Examiner made reference to paragraphs [0020], [0031]-[0033], [0036] and [0037] of the Yang reference. See *Final Office Action mailed March 4, 2009* ("Office Action"), pg. 5, lines 2-6. In view of the cited portions of the Yang reference, it appears that the Examiner is utilizing the silicon rubber (RTV) seal (19), as best seen in FIGS. 3 and 4 of the Yang reference, to teach both the elastomeric gasket and the gasket element that bond together two fuel cell units as defined in claim 1. See also *Office Action*, pg. 5, lines 15, 18 (citing to gasket 19). Applicants submit that the RTV seal

(19) is not cured prior to bonding together to two fuel cell units as set forth in claim 1, but is instead cured during the bonding together of two fuel cell units. The Yang reference states the following:

In manufacturing the single cell 10, the first step is to dispose MEA 13 on the central portion 12a (or 11a) of the cathode (or anode) bipolar plate 12 (or 11), then utilizing the programmed robotic arm to dispense the desired amount of the RTV, free from the manifolds, on the circumferential portion 12b (11b) of the cathode (or anode) bipolar plate 12 (or 11), and finally superimpose the anode (or cathode) bipolar plate 11 (or 12) over the MEA 13 which has been provided on the cathode (or anode) bipolar plate 12 (or 11), under a pre-determined compression pressure of about 100 psi for performing a preferred effect of conductivity. After the anode bipolar plate 11 and the cathode bipolar plate 12 are evenly pressed together and the viscose RTV flows into the gaps probably existing between the layers to achieve a secure seal, the RTV can be cured under an application of moisture or heat.

Yang, ¶ [0033].

As set forth above in the Yang reference, in manufacturing a single fuel cell (10), a desired amount of RTV material is dispensed on the anode bipolar plate (11b) or cathode bipolar plate (12b), and the MEA (13) is superimposed over the bipolar plate (11b, 12b) and placed under a predetermined amount of compression. See *id.* The RTV material then flows between the layers and cures to form the RTV seal (19) between the bipolar plates (11b, 12b). Therefore, the Yang reference discloses that the RTV seal (19) is cured during, not prior to, the bonding together of two fuel cell units (10).

Even if the Examiner looks to the RTV seal (24) that is disposed between two bipolar plates (21a, 21c) to teach an elastomeric gasket or a gasketing element that

is cured prior to bonding together at least two fuel cell units, Applicants maintain that the cited portions of the Yang reference fail to support this position. With reference to the RTV seal (24), the Yang reference states the following:

As for the procedure of modulizing and stacking the single cells 21, 22, 23, a measure to apply the RTV as shown in FIG. 3 can also be employed. That is, the cathode bipolar plate 21c of the single cell 21 and the anode bipolar plate 22a of the single cell 22 are provided with two opposing grooves 21d, 22d formed on the circumferential portion of a lower surface and an upper surface thereof, respectively. Before the stacking of the single cells in series, a suitable amount of RTV is similarly injected to the groove 22d by means of programmed robotic arms. After that, the single cell 21 is superimposed over another single cell 22 under a pre-determined compression pressure for the next curing procedure (the single cells 22 and 23 are stacked together in a similar fashion). Preferably, the RTV 24 employed in the interior of each single cell and that 19 employed between every two single cells are of similar or the same material.

Yang, ¶ [0036].

In view of the above discussion in the Yang reference relative to the RTV seal (24), a suitable amount of RTV material is first injected into a groove (22d) (FIG. 4), two single cells (21, 22) are disposed over one another and placed under a pre-determined compression pressure so that the RTV material is permitted to cure to bond the two cells (21, 22) together. *See id.* Therefore, as with the RTV seal (19), the RTV seal (24) cures during, not prior to, the bonding together of two cells (21, 22).

Applicants further submit that the discussion with respect to the fuel cell (1) shown in FIG. 1 of the Yang reference also does not disclose the above-referenced limitation in claim 1. The fuel cell (1) shown in FIG. 1 of the Yang reference is

discussed in paragraphs [0015-0017] of the Yang reference. In particular, paragraphs [0015-0017] of the Yang reference include a discussion that relates to two gaskets (5, 6) included therein. From the discussion of the gaskets (5, 6) in paragraph [0013] of the Yang reference, it appears that both of the gaskets (5, 6) are cured prior to forming the fuel cell (1). Neither of the gaskets (5, 6) are described as being cured during the formation of the fuel cell (1). More specifically, Applicants submit that the discussion set forth in paragraphs [0015-0017] does not disclose that one of the gaskets (5, 6) is cured prior to bonding together at least two of the fuel cells (1) and that the other gasket is cured during the bonding together of at least two of the fuel cells (1).

For at least the reasons set forth above, the Yang reference fails to teach or suggest a method for forming a fuel cell assembly wherein one of at least one elastomeric gasket or at least one gasketing element is cured prior to bonding together at least two fuel cell units, and the other of the at least one elastomeric gasket and the at least one gasketing element is cured during the bonding together of the at least two fuel cell units as recited in amended claim 1. Thus, Applicants submit that the Yang reference fails to teach or suggest each and every limitation included in claim 1. As such, Applicants submit that a prima facie case of anticipation has not been established and request that the rejection of claim 1 be withdrawn. As claims 3, 4, 7, 8, 9 and 20 depend either directly or indirectly from claim 1, Applicants request that the rejection of these claims be withdrawn for at least the same reasons that were set forth with respect to claim 1.

Independent claim 14 is directed to a fuel cell assembly comprising a plurality of fuel cells bonded together to form a fuel cell sub-assembly module, wherein the fuel cell sub-assembly module is included in a plurality of fuel cell sub-assembly modules, and wherein the plurality of fuel cell sub-assembly modules are bonded together to form the fuel cell assembly. At least one of the fuel cells includes a bipolar plate assembly and a membrane electrode assembly. At least one gasket and at least one gasketing element are positioned between at least two of the plurality of fuel cells. One of the at least one gasket or the at least one gasketing element is cured prior to bonding together at least two of the plurality of fuel cells, and the other of the at least one gasket and the at least one gasketing element is cured during the bonding together of the at least two of the plurality of fuel cells.

For at least the same reasons that were set forth above with respect to claim 1, Applicants submit that the Yang reference does not teach or suggest a fuel cell assembly wherein one of at least one gasket or at least one gasketing element is cured prior to bonding together at least two of said plurality of fuel cells, and the other of the at least one gasket and the at least one gasketing element is cured during the bonding together of the at least two of the plurality of fuel cells as recited in claim 14. It is therefore requested that the rejection of claim 14 be withdrawn. As claim 26 depends from claim 14, this claim is not taught or suggested by the Yang reference for at least the same reason that was set forth with respect to claim 14. It is requested that the rejection of claim 26 be withdrawn.

Independent claim 17 is directed to fuel cell assembly comprising a plurality of fuel cells bonded together to form a fuel cell sub-assembly module, wherein the fuel

cell sub-assembly module is included in a plurality of fuel cell sub-assembly modules, and wherein the plurality of fuel cell sub-assembly modules are bonded together to form the fuel cell assembly. At least one of the fuel cells includes a bipolar plate assembly and a membrane electrode assembly. At least one gasket and at least one gasketing element are positioned between at least two of the plurality of fuel cell sub-assembly modules. One of the at least one gasket or the at least one gasketing element is cured prior to bonding together at least two of the fuel cell sub-assemblies, and the other of the at least one gasket and the at least one gasketing element is cured during the bonding together of the at least two of the fuel cell sub-assembly modules.

For at least the same reasons that were set forth above with respect to claim 1, Applicants submit that the Yang reference does not teach or suggest a fuel cell assembly wherein one of the at least one gasket or the at least one gasketing element is cured prior to bonding together at least two of the fuel cell sub-assemblies, and the other of the at least one gasket and the at least one gasketing element is cured during the bonding together of the at least two of the fuel cell sub-assembly modules as recited in claim 17. It is therefore requested that the rejection of claim 17 be withdrawn. As claim 28 depends from claim 17, this claim is not taught or suggested by the Yang reference for at least the same reason that was set forth with respect to claim 17. It is requested that the rejection of claim 28 be withdrawn.

Independent claim 23 is directed to a method for forming a fuel cell assembly, comprising the steps of: a) forming a fuel cell sub-assembly module containing at

least two bonded together fuel cell units, the at least two fuel cell units each including an anode, a cathode, and a membrane electrode assembly; b) testing the sub-assembly module; and c) joining together a plurality of sub-assembly modules to form the fuel cell assembly. The plurality of sub-assembly modules are joined together using at least one elastomeric gasket and at least one gasketing element, One of the at least one elastomeric gasket or the at least one gasketing element is cured prior to joining together at least two of the plurality of sub-assembly modules, and the other of the at least one elastomeric gasket and the at least one gasketing element is cured during the joining together of the at least two of said plurality of sub-assembly modules.

For reasons similar to those that were set forth above with respect to claim 1, Applicants submit that the Yang reference does not teach or suggest a method wherein one of at least one elastomeric gasket or at least one gasketing element is cured prior to joining together at least two of a plurality of sub-assembly modules, and the other of the at least one elastomeric gasket and the at least one gasketing element is cured during the joining together of the at least two of said plurality of sub-assembly modules as recited in claim 23. It is therefore requested that the rejection of claim 23 be withdrawn.

Claims 22, 24, 25 and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yang reference.

Claims 22, 24, 25 and 27 depend from claims 1, 23, 14 and 17, respectively, and therefore are not taught or suggested by the Yang reference for at least the



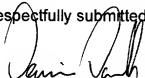
same reasons that were set forth above with respect to claim 1. It is requested that the rejection of these claims be withdrawn.

**Conclusion**

In light of the foregoing, Applicants submit that claims 1, 3, 4, 7-9, 14, 17, 20 and 22-28 are in condition for allowance and such allowance is respectfully requested. Should the Examiner feel that any unresolved issues remain in this case, the undersigned may be contacted at the telephone number listed below to arrange for an issue resolving conference.

The Commissioner is hereby authorized to charge the \$220.00 fee for the one additional independent claim in excess of three, and any other fee that may have been overlooked to Deposit Account No. 10-0223.

Respectfully submitted,



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